

FULLY-AUTOMATED RETAIL AND F&B SUSTAINABLE INNOVATIONS TO REDUCE RELIANCE ON MANPOWER

CONTEXT

This challenge is organised by Stellar Lifestyle, a business arm of SMRT Corporation Limited, with their partner Japan East Railway Company (JR East) to address challenges faced by retail and transit operators in Singapore and Japan.

- Stellar Lifestyle is the largest managing agent of retail and advertising spaces in Singapore's rail network and their growing portfolio includes mall management and outdoor media & digital engagement platforms. They have invested in new businesses such as co-working spaces, unmanned concepts and dark stores, with a vision to grow them into a new core.
- JR East is the operator for trains including Shinkansen (high speed bullet train) in eastern Japan. It is the largest passenger railway company in Japan, serving about 13 million passengers daily. JR East Group also operates a variety of lifestyle businesses such as shopping malls, retail shops, restaurants, hotels, as well as office building management. Outside Japan, JR East has a presence for its lifestyle business unit with the establishment of Japan Rail Cafe in Singapore and Taiwan.

Through this joint innovation programme, Stellar Lifestyle and JR East are seeking solutions to support online transformation, online-to-offline customer engagement, develop a vibrant environment inside train stations to improve commuter experiences, and introduce new last-mile robotics delivery platforms for retailers and F&B merchants, within SMRT and JR East-operated train stations.

The retail and food & beverage (F&B) sectors are facing a dwindling supply of manpower, and increase in labor/retraining costs due to staff attrition. The Covid-19 pandemic has accelerated the need for automation and unmanned solutions, delivered in a contactless manner, to support operations and increase productivity. This has led to an increased interest in unmanned technology innovations such as autonomous delivery, self-checkout, and robotic kitchen automations as a potential way of achieving cost savings in the long run. Some of the innovations that have been tested/trialed include unmanned cash registers and convenience stores that recognise and allow customer access through mobile app, video analytics, and biometrics. However, such concepts that require large initial investments are difficult to scale.

Through this challenge, Stellar Lifestyle and JR East are looking for unmanned concepts that can either assist their retail and F&B tenants in their operations or become new autonomous unmanned products and service offerings to be piloted by Stellar Lifestyle and/or JR East within their train station retail spaces.

PROBLEM STATEMENT

How might we imagine new fully-automated and sustainable innovations that improve efficiency, reduce costs and optimise operations for retailers and customers in the retail and food & beverage sectors?

WHAT ARE WE LOOKING FOR?

Stellar Lifestyle and JR East are looking for innovative and sustainable ideas that leverage unmanned autonomous technology to improve operational efficiency, reduce costs and enhance the customer experience. These solutions can leverage technologies such as computer vision, sensors and artificial

intelligence. The possible direction, solution criteria, and use cases mentioned in this brief should not limit the Problem Solver's thinking.

The Problem Solver should consider the following when proposing ideas/solutions:

- New unmanned innovations targeting consumers. Potential ideas could revolve around unmanned B2C retail and F&B micro-store concepts of coffee stand, juice bar, bakery, fashion, electronics etc. Solvers should highlight how they are innovative or different from other existing unmanned concepts.
 - i. Understanding of demand/needs. The innovation should include ways to track consumer demand and generate insights into how customers interact with these unmanned innovations, to improve and finetune the products/services to be offered.
 - ii. Sustainability. As consumers become more environmentally conscious, innovations should be designed with sustainability in mind (e.g. use of eco-friendly materials, or ability to keep track of expiry dates and inventory in real-time, with the aim of minimising waste).
 - iii. Security. Proposed innovations should consider how to prevent theft, unauthorised access, or damage to the unmanned solutions.
- New unmanned innovations targeting businesses. Potential solutions could revolve around automation solutions to support food/drink preparation, unmanned digitalisation tools to supplement existing store operations, or improve existing sales/transaction methods.
 - Sustainability. Innovations should be designed in a way that supports companies in going green/managing their carbon emissions and energy consumption.
- Market opportunity. The proposal should include the business model, potential benefits/impact and financial projections for implementation beyond prototype.
- Scalable. The solution should be designed to be scalable and adaptable to different retail and F&B operators.

There are no restrictions on the geographical location of the problem solvers who may choose to apply to this challenge. However, the prototype must be demonstrated in Singapore.

POSSIBLE USE CASES

1. Convenient unmanned micro-store for meals. Lisa, a busy professional who often works late, has limited options for dinner as most of the F&B stores are closing/have closed by the time she leaves the office. On her way to the nearest train station from her office, she discovers an unmanned F&B micro-store, where she can simply select her meal, pay through her mobile, and enter a booth to have her meal quickly in a private space. She can also give feedback through the booth on her meal experience, dietary needs and preferences, which helps inform the store operator what to stock up or improve on, enabling them to boost retailer profitability.

WHAT'S IN IT FOR YOU

- Up to SGD55,000 of prize money for each winner of this challenge (see Award Model)
- Access to IMDA's innovation consultancies (e.g. Design Thinking, Digital Storytelling, UI/UX) and PIXEL corporate innovation hub (e.g. hot-desking, project studios, ARVR, usability, 5G test labs) for prototyping and commercialisation
- Aside from grants, shortlisted innovators will be provided with the Innovation Support and Resource Package comprising of mentors, consultants, workshops, labs, co-working offices, incubation platforms and more provided by SMRT, Singapore University of Technology and Design (SUTD), and JR East detailed below

Figure 1: SMRT – HIVE by Stellar Lifestyle @ Esplanade & Staytion Co-working Spaces

 <p>Incubation Hub to help innovators validate, commercialize and scale</p> <ul style="list-style-type: none"> • Corporate Mentors • Subsidized Rent • HIVE Studio & Kitchen • Free & Extensive PR / Marketing 	 <p>Co-working Space as Office Solutions</p> <p>2023 Locations: Marsiling, Paya Lebar, Dhoby Ghaut, Woodlands, Jurong East</p> <p>Includes POC validation and commercialization opportunities</p> 
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Figure 2: SUTD Innovation & Entrepreneurship Programmes

Shortlisted innovators will be invited to participate in the SUTD ARISE Program and SUTD ESG Impact Lab. The ARISE Program consists of a series of workshops that facilitate innovators to bring their technology to venture creation. Participants will develop business strategies, operation plans, financial projections and pitching strategies during the workshops. The SUTD ESG Impact Lab is a series of masterclasses to develop the awareness of innovators on developments and opportunities in ESG and how they can achieve their corporate social responsibility goals.



Figure 3: JR East – Opportunities and Support to expand into the Japan Market

 <p>Language Barrier Support</p>	 <p>Mentorship for integration into the Japan Market</p>	 <p>POC Validation Platforms in the Japan Rail Club ecosystem</p>	 <p>Access free Co-working Spaces in SG</p>
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EVALUATION CRITERIA

The evaluation process shall take place over two stages. Proposals shall be evaluated based on the evaluation criteria set out for the first stage. Thereafter, shortlisted proposals shall be subjected to a second stage evaluation in the form of an interview / pitch, and the scoring shall be based on a re-defined assessment criteria for the selection of the challenge finalist(s).

Solution Fit (30%)	<u>Relevance</u> : To what extent does the proposed solution address the problem statement effectively?
Solution Readiness (30%)	<u>Maturity</u> : How ready is the proposed solution to go to the market? <u>Scalability</u> : Is there any evidence to suggest capacity to scale?
Solution Advantage (20%)	<u>Quality of Innovation</u> : Is the solution cost effective and truly innovative? Does it make use of new technologies in the market, and can it potentially generate new IP?
Company Profile (20%)	<u>Business Traction</u> : Does the product have user and revenue traction? <u>Team Experience</u> : Do the team members possess strong scientific/technical background?

AWARD MODEL

The prize money will be awarded to each selected finalist based on milestones agreed upon between Problem Owner(s) and the solver. Prize money will be inclusive of any applicable taxes and duties that any of the parties may incur.

Note that a finalist who is selected to undertake the prototype development process will be required to:

- Enter into an agreement with Problem Owner(s) that will include more detailed conditions pertaining to the prototype development;
- Complete grant application form(s) with Stellar Lifestyle and its partners that will require more financial and other related documents for potential co-funding support.

Teams with public research performers are required to seek an endorsement from their respective Innovation and Enterprise Office (IEO) and submit the IEO form together with the proposal.

DEADLINE

All submissions must be made by **9 June 2023, 1600 hours (SGT/GMT +8)**. Problem Owner(s) and IMDA may extend the deadline of the submission at their discretion. Late submissions on the OIP, or submissions via GeBIZ, will not be considered.